

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant: Di Serio
Confirmation No.: 9212
Serial No.: 10/035,018
Group Art Unit: 3725
Filed: December 27, 2001
Examiner: Lowell A. Larson
Title: METHOD FOR MANUFACTURING MOLDED THEN FORGED PARTS
COMPRISING ONE OR MORE RECESSES AND THE IMPLEMENTATION
INSTALLATION THEREOF

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on March 20, 2007.*



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**APPEAL BRIEF TO THE BOARD
OF PATENT APPEALS AND INTERFERENCES**

Dear Sir:

This is an appeal under 37 C.F.R. § 1.191 and § 1.192 from a final Office Action dated October 20, 2006, of claims 1-4, comprising all the claims finally rejected. A Notice of Appeal from the Primary Examiner to the Board of Patent Appeals and Interferences was timely filed on Monday, January 22, 2007, following Saturday, January 20, 2007, and received in the U.S. Patent and Trademark Office on January 22, 2007. Therefore, this Brief is timely filed, along with the corresponding filing fee in the amount of \$250.00 for filing a brief in support of an

appeal. The Commissioner is authorized to charge U.S. Deposit Account No. 08-1935 in the amount of \$250.00. The Commissioner is authorized to credit any overpayment, or charge any additional fees required to U.S. Deposit Account No. 08-1935.

REAL PARTY IN INTEREST

Emile DiSerio, the inventor in this patent application, is the real party in interest.

RELATED APPEALS AND INTERFERENCES

To the knowledge of the Appellant and Appellant's undersigned legal representative, there are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

Claims 1-2 were originally presented in the subject application. Claim 3 was added in an Amendment dated February 27, 2006 in response to the November 2, 2005 Final Office Action along with a Request for Continued Examination. Claim 4 was added in an Amendment dated September 12, 2006 in response to March 23, 2006 Office Action. No claims have been allowed. Therefore, claims 1-4 remain rejected and are herein being appealed.

STATUS OF AMENDMENTS

No amendments were filed subsequent to the Final Office Action dated October 20, 2006. All amendments have been entered.

SUMMARY OF CLAIMED SUBJECT MATTER

In a first aspect of the invention recited in independent claim 1, a method for manufacturing parts that are molded then forged having one or more recesses is characterized in that it includes a foundry preform (1, FIG. 1; page 4) being created that includes one or more

pierced or blind recesses (1C, FIG. 1; page 4) or cavities having one or more shapes that match the useful or required shapes of an end part to be obtained. The preform is transferred to a tunnel furnace that insures a uniform temperature of the preform. The preform is positioned in a heading die (3, FIG. 2; page 4) disposed on a press. At least one multidirectional rod (2, FIG. 2; page 4) is introduced into at least one of a recess and a cavity of the one or more recesses or cavities of the foundry preform by a control means (5, FIG. 3; page 4) according to a command prior to a heading operation. The heading operation is performed on the preform that receives the at least one rod to create a forged preform when the at least one rod is temporarily positioned inside the at least one of a recess and a cavity. The at least one rod substantially maintains at least one shape of the one or more shapes of the at least one of a recess and a cavity during the heading operation. An upper forging die is raised to free the forged preform. The at least one rod positioned in the at least one of a recess and a cavity is withdrawn by the control means, and the forged preform is removed.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1 and 3 stand rejected under 35 U.S.C. § 103(a) as being obvious over Mikito (Japanese Publication No. 007195136) and Hiroshi (Japanese Patent No. 05146841).
2. Claims 2 and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mikito (Japanese Publication No. 007195136).

ARGUMENT

Rejections Under 35 U.S.C. § 103:

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being obvious over Mikito and Hiroshi (Japanese Patent No. 05146841). Mikito is alleged to teach or suggest all the features of the claims of the present application except for the maintaining of at least one shape of one or more shapes of at least one of a recess and a cavity during the heading process, which is alleged to be taught by Hiroshi.

Amended claim 1 of the present application recites, inter alia, a method for manufacturing parts that are molded then forged which include one or more recesses, and the method includes creating a foundry preform having one or more pierced or blind recesses or cavities. The preform is transferred to a tunnel furnace to ensure a uniform temperature of the preform. The preform is positioned in a heading die exposed on a press and at least one multi-directional rod is introduced into at least one of a recess and a cavity of the one or more recesses or cavities of the preform by a control means according to a command prior to a heading operation. The heading operation is performed on the preform to create a forged preform with the at least one rod being temporarily positioned inside the recess and/or cavity. At least one shape of the one or more shapes of the at least one of a recess and a cavity is maintained by the at least one rod during the heading operation. The at least one rod positioned in the at least one of a recess and a cavity is withdrawn by the control means.

Mikito discloses forming a cast molten metal inside a first die to form a pre-forming product which is smaller than the final product desired. The pre-forming product is then put inside a second die having a shape of the product desired and the die is sealed except for openings to allow pressing means to pass therethrough. The pre-forming product is in a pasty, semi-liquid, semi-solid state, and the pressing means applies pressure to the pre-forming product to force it to conform to the shape of the interior of the second die. Also, objects may be arranged to protrude into the interior portion of the die to form cavities therein. As depicted in FIGS. 6, 8 and 9, cavities 51 and 52 are created in a first step and in a second step a die 62 compresses the product to cause movement of the pasty, semi-liquid, semi-solid metal material to fill in the space around spindles 63 and 64 located in cavities 51 and 52. However, there is no disclosure of at least one shape of at least one of a recess and a cavity of a foundry preform being substantially maintained by a multi-directional rod during a heading operation. Instead, as noted above, a shape of the preform product is changed by the pressure applied by die 62 causing movement of material into spaces around spindle 63 and 64. Further, there is no disclosure of at least one multi-directional rod being introduced into preform recesses or cavity by a control means according to a command prior to a heading operation nor such a rod being withdrawn by such control means after the heading operation.

Hiroshi discloses an insert 50 remaining in situ in a core during a casting operational phase and the insert assembly produced is then subjected to a sizing or heading operation. Inserts 50 are combined with washers 54 which are located outside the preform depicted in the figures. The combination of the inserts and washers are positioned in the casting mold. Metal is cast around the insert and the washer positions the insert axially in the mold. The preform is then subjected to a forging operation and subsequently the insert-washer assemblies are removed for use in another casting and forging operation. However, there is no disclosure of a multi-directional rod being inserted into a recess or cavity of a foundry preform to substantially maintain a shape of such recess or cavity during a heading operation nor the introduction of such a rod by a control means according to a command prior to the heading operation and the removal of such a rod after the heading operation by the control means, as recited in claim 1. Instead, Hiroshi discloses an insert remaining in a core during a casting and forging phase which teaches away from the introduction and removal of a multi-directional rod prior to, and after, a heading operation as recited in claim 1 of the present application.

Further, the washer-insert assembly teaches away from a multidirectional rod forming multidirectional recesses since the washers hold the inserts in a fixed position (i.e., would not allow placement in multiple directions) during the casting and forging operations. Also, a forged preform having an insert therein as in Hiroshi would not be inserted into a tunnel furnace as recited in claim 1. More particularly, such a furnace would expose the washers connected to the inserts to a high temperature and there is no indication that the washers would be designed for such use. Instead, the washers appear to be located outside the forging operation and thus not exposed to pressure or excessive heat during the casting and forging operation. For example, such washers could be made of wood which would be destroyed during heating in a tunnel furnace. Alternatively, even if the washers were made of metal, the desired reuse of the insert-washer assemblies would make it unlikely that the assemblies could be reheated in the tunnel furnace through multiple iterations without damage thereto.

Moreover, even if the references were combined as alleged, there is no disclosure, teaching or suggestion in either of these references, or their combination, of the introduction of a

multi-directional rod into a recess and/or a cavity of the foundry preform by a control means according to a command prior to a heading operation, nor the withdrawing of such a rod after a heading operation by a control means. Mikito discloses a heading operation which causes the movement of semi-liquid metal to fill in spaces around spindles located in cavities thereof and Hiroshi discloses an insert which is subjected to casting and heading operations, but neither Hiroshi nor Mikito discloses a control means for inserting and withdrawing a multidirectional rod for maintaining a shape of a recess and/or a cavity of a preform. Further, there would be no reason for a multi-directional rod to be introduced into a recess of a foundry preform by a control means according to a command prior to a heading operation, nor the withdrawing of such a rod after a heading operation by the control means. The inserts in Hiroshi are clearly intended to remain in the preform during the molding and forging operations and thus there would be no reason for one skilled in the art to even look for a method which might insert a rod into a preform and withdraw such rod after a heading operation. More specifically, because the insert remains in the cavities in Hiroshi during the molding and forging processes, there is no incentive to remove them after molding and prior to forging, because such inserts if removed would need to be reinserted for the forging process. Thus, there would be no need relative to Hiroshi for a method or device which inserts a rod into a preform prior to a heading operation and removes the insert after the operation. As indicated relative to Mikito, the cavities in the initial preform are not maintained in the secondary process thereby obviating any need to insert and remove a rod therein which maintains a shape of such a cavity.

Further, there is no disclosure, teaching or suggestion in the cited references, or their combination, of a preform being transferred to a tunnel furnace as recited in claim 1. In particular, Mikito discloses a cast molten metal in a first die, which is in pasty, semi-liquid, semi-solid state, but there is no indication nor would there be any reason to believe that such a product would be further placed into a tunnel furnace. Instead, the metal is in a semi-liquid state already, and there is no reason to believe that placement in a tunnel furnace would provide any benefit. Further, Hiroshi discloses inserts having washers thereon, and there would be no reason to put such preform into a tunnel furnace. If the preform in Hiroshi was put in a tunnel furnace it would likely destroy the reusable washers used therewith. Thus, there is no teaching, suggestion

or motivation which would cause one skilled in the art to locate the preform in Mikito or Hiroshi in a tunnel furnace.

Further, there would be no reason to combine Hiroshi and Mikito. "It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art, absent some teaching or suggestion, in the prior art, to combine the elements". Arkio Lures Inc., v. Gene Larew Tackle Inc., 43 USPQ 2d, 1294, 1297 (Fed. Cir. 1997); In re Oetiker, 24 USPQ 2d 1443, 1446 (Fed. Cir. 1992). Thus, the mere existence of inserts in Hiroshi and some mechanism for extending objects into the die in Mikito would not provide a reason to combine these references, nor would such a combination result in the subject matter of the claims of the present application. Page 2 of the Final Office Action alleges that whether the shape of preform cavities is reformed during forging as in Mikito, or maintained in a molded shape as in Hiroshi, is allegedly an obvious exercise of mechanical design. A reference must be viewed as a whole, including portions which argue against obviousness. Bausch & Lomb, Inc., v. Barnes-Hind/Hydrocurve, Inc., 230 USPQ 416, 420 (Fed. Cir. 1986) 796 F.2d 443, 450. As indicated above, inserts remain in the cavities in Hiroshi during the casting phase and a sizing or heading operation. In contrast, Mikito discloses a performing product which is a semi-liquid and which utilizes different size inserts with pressure being utilized to move the semi-liquid materials into a space around the different sized inserts. When viewed as a whole, these references disclose metal being formed out of different shapes using differing methods. As indicated in the Office Action, both Mikito and Hiroshi disclose forging, but the processes disclosed differ from each other. There would be no reason to combine these references and such combination is mere hindsight in view of the features recited in the claims of the present application and such hindsight reconstruction is improper. In re Fine, 5 USPQ 2d, 1596, 1600 (Fed. Cir. 1988), W.L. Gore Assoc., Inv. v. Garlock Inc., 220 USPQ 303, 312 (Fed. Cir. 1983).

Thus, because all the features (e.g., introducing at least one multi-directional rod into a recess and/or a cavity of a foundry preform according to a command prior to a heading operation, substantially maintaining at least one shape of the recess and/or cavity of a foundry preform by the at least one rod during a heading operation, receiving a preform in a tunnel

furnace to ensure a uniform temperature thereof, performing a heading operation on the preform, and withdrawing the at least one rod by the control means) of claim 1 of the present application are not taught, disclosed or suggested by Mikito combined with Hiroshi, this claim cannot be obvious over these references. The dependent claims are believed not to be obvious for the same reasons and for their own additional features. Thus, these claims are believed to be allowable.

Rejections Under 35 U.S.C. § 102:

Claims 2 and 4 also stand rejected under 35 U.S.C. § 102(b) as being anticipated by Mikito. The standard for anticipation is one of strict identity between all the elements of a claim and the disclosure of a single reference. See, e.g., Rockwell International Corp. v. United States, 147 F.3d 1358, 1363, 47 U.S.P.Q.2d 1027, 1031 (Fed. Cir. 1998) (“Anticipation under 35 U.S.C. Section 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention[.]”). Gechter v. Davidson, 116 F.3d 1454, 1457, 43 U.S.P.Q.2d 1030, 1032 (Fed. Cir. 1997) (“Under 35 U.S.C. §102, every limitation of a claim must identically appear in a single prior art reference for it to anticipate the claim.”); and Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986) (“It is axiomatic that for prior art to anticipate under §102 it has to meet every element of the claimed invention[.]”). As indicated above, claim 1 cannot be obvious over the cited combination of references and accordingly, claim 2 incorporating the features of claim 1 could clearly not be anticipated by Mikito alone. These claims are believed to be allowable for at least the same reasons as their base independent claims and for their own additional features.

Also, amended claim 2 recites, *inter alia*, the control means of claim 1 including one or more multi-directional rod translation mechanisms positioned around the heading die receiving the foundry preform as recited in claim 1. There is no disclosure in Mikito of such a control means nor the control means including a rod translation mechanism which is positioned around a heading die receiving a foundry preform. Thus, claim 2 is believed to be allowable for the same reasons described above for claim 1 and for the additional features of the rod translation


mechanisms positioned around the heading die. Claim 4 further recites the control means including a cylinder-type control means which is also not identically disclosed by Mikito.

CONCLUSION

In conclusion, Appellant submits that the proposed combination of Mikito and Hiroshi cannot make claims 1 and 3 of the present application obvious. It is respectfully submitted that there is no teaching, suggestion or motivation which would cause one skilled in the art to combine these references. Further, the subject matter of these references teach away from such a combination. Moreover, even if the references were combined as alleged, they would not result in the subject matter of the claims of the present application. Therefore, it is respectfully submitted that the proposed combination of references cannot make the claims of the present application obvious. Further, because all the features of claims 2 and 4 are not identically disclosed by Mikito, these claims cannot be anticipated by this reference. Accordingly, Appellant submits that the Final Office Action should be reversed in all respects.

Respectfully submitted,

Dated: March 20, 2007



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APPENDIX A

Claims:

1. *(Previously Presented)* Method for manufacturing parts that are molded then forged comprising one or more recesses, characterized in that it implements the following phases:

- a foundry preform is created that includes one or more pierced or blind recesses or cavities having one or more shapes that match the useful or required shapes of an end part to be obtained;
- the preform is transferred to a tunnel furnace that ensures a uniform temperature of said preform;
- the foundry preform is positioned in a heading die disposed on a press;
- at least one multidirectional rod is introduced into at least one of a recess and a cavity of the one or more recesses or cavities of the foundry preform by a control means, according to a command prior to a heading operation;
- the heading operation is performed on the preform that receives the at least one rod to create a forged preform, when the at least one rod is temporarily positioned inside the at least one of a recess and a cavity;
- substantially maintaining by the at least one rod at least one shape of the one or more shapes of the at least one of a recess and a cavity during the heading operation;
- an upper forging die is raised to free the forged preform;
- the at least one rod positioned in the at least one of a recess and a cavity is withdrawn by the control means; and

- the forged preform is removed.

2. *(Previously Presented)* Installation to implement the method of claim 1 wherein the control means comprises one or more multidirectional rod translation mechanisms positioned around the heading die receiving the foundry preform, said at least one rod being positioned temporarily in the foundry preform through the corresponding at least one of a recess and a cavity in order to be subjected to the forging operation.
3. *(Previously Presented)* The method of claim 1 wherein the preform comprises a solid prior to the heading operation.
4. *(Previously Presented)* The installation of claim 2 wherein the control means comprises a cylinder-type control means.

APPENDIX B

Evidence Appendix:

NONE

APPENDIX C

Related Proceedings Appendix:

NONE